U.S. DEPARTMENT OF ENERGY
OFFICE OF ENERGY EFFICIENCY AND RENEWABLE ENERGY
FEDERAL ENERGY MANAGEMENT PROGRAM
CALL FOR FY 2005 TECHNICAL ASSISTANCE PROJECTS

The U.S. Department of Energy (DOE), Office of Energy Efficiency and Renewable Energy, Federal Energy Management Program (FEMP) provides technical assistance, financing assistance, education, and outreach to help Federal agencies meet energy efficiency and renewable energy goals set by Executive Order 13123, "Efficient Energy Management," Presidential Directive on "Energy Conservation at Federal Facilities," and the National Energy Policy Report. This Call for Projects is the means by which FEMP identifies projects for direct technical assistance in FY 2005.

In compliance with Executive Order 13123, agencies are encouraged to apply sustainable and whole building design principles when planning new facilities. Agencies are also encouraged to optimize life-cycle costs, reduce pollution, and consider other environmental and energy costs associated with the construction and life-cycle operation of facilities. Under these design principles, agencies are to optimize site potential, minimize energy consumption, utilize renewable energy, protect and conserve water, use environmentally-preferable products, enhance indoor environmental quality, assure reliable energy supply for critical missions, and optimize operational and maintenance practices.

FEMP is interested in supporting agency projects in need of technical assistance in the following areas:

- Sustainable New Building Design;
- Energy and Water Efficiency Retrofits;
- Distributed Generation (DG)/Combined Heat and Power (CHP) projects contributing to energy security and reliability;
- Renewable Energy; and
- Operations and Maintenance.

Technical assistance includes screening for project opportunities, performing feasibility studies, reviewing procurement specifications (including those for A&E services), design review, evaluation of completed projects, and conducting sustainable facility workshops. Up to $500,000 in funding for technical assistance will be distributed among selected projects in FY 2005. FEMP's technical assistance funding will typically range from $25,000 to $50,000 per project, depending on the scope of work. Cost sharing for the required technical assistance is encouraged.

This Call for Projects is for technical assistance only and cannot be used for funding of hardware or buy down of financed projects. Funding for successful applicants will not be transferred to agencies, rather the assistance will be provided directly by DOE national laboratories and contractors selected from the best energy and sustainability consultants in the country. Successful applicants may need to clarify or refine the scope of technical services based on available funding. If so, this will be accomplished in coordination with the DOE Regional Office.

If you are interested in requesting technical assistance from FEMP, please complete and submit the application on-line at http://fempcentral.com/tacalls/logon.ta by close of business **July 16, 2004**. Applications received after July 16 will not be accepted. Agencies that participated in the FY 2003 Call for Projects are encouraged to reapply.

For more information about FEMP visit our web site at: http://www.eere.energy.gov/femp. For frequently asked questions, see Attachment 2. For Application examples, See Attachment 5.

A. SELECTION PROCESS

The DOE Regional Office technical review team will evaluate the technical assistance applications based on the selection criteria listed in this document, contact the applicant for verification of responses, and will provide recommendations to the DOE FEMP Headquarters office for final selection. Successful applicants will be notified by November 12, 2004.

B. REPORTING REQUIREMENT

Quarterly reporting will be required for selected applicants after the technical assistance has been completed in order for FEMP to track successful projects and share success stories with other Federal agencies. See Attachment 4, "Federal Agency Technical Assistance Reporting".

C. FEMP TECHNICAL ASSISTANCE SERVICES

1. Sustainable New Building Design Project Assistance

For new construction, FEMP is most interested in projects where assistance can be provided for the complete design cycle, from early conceptual design through final design. For large/complex projects, such as Federal courthouses, we will consider projects for multi-year technical assistance efforts depending upon availability of funds. The assistance includes such items as:

- Design and specification review;
- Evaluation of Leadership in Energy and Environmental Design (LEED) ratings and LEED assessment, including building commissioning specifications;
- Selection criteria for Architecture/Engineering (A/E) firms and the development of a scope of work for an A/E;
- Development of a base case model of energy use and establishment of a performance goal;
- Energy modeling, development of specifications for contractor energy modeling, and review of contractor energy modeling;
- Participation in and facilitation assistance of design team meeting(s) to identify energy reduction strategies to meet goals;
- Sustainable facility workshops or charrettes to encourage integrated sustainable facility design with an emphasis on energy and water issues;
- Life cycle cost comparison of options including glazing, lighting, Heating, Ventilating, and Air Conditioning (HVAC) and Energy Star procurement options to meet energy goals for the building;
- Evaluation of renewable energy strategies;
- Assessment of energy supply issues, on-site power generation options, combined heat and power, and technical approaches to ensure reliable power in the event of an emergency or prolonged grid outage; and
- Development of methods for measuring and verifying performance of completed buildings.

For additional information about FEMP's New Construction Project Assistance please visit our website at:
http://www.eere.energy.gov/femp/program/newconstruction.cfm

2. Retrofit Project Assistance

For retrofit projects, FEMP is interested in a portfolio of projects that includes energy and water efficiency, renewable energy, and combined heat and power to achieve greater energy savings than might otherwise be achieved. Selection criteria favor projects with evidence of financing for their implementation (either documented commitment for agency appropriations or projects that are financed through Energy Savings Performance Contracts (ESPCs) or Utility Energy Service Contracts (UESCs)). For retrofit projects, FEMP services may include:

- Analysis of opportunities incorporating sustainable design principles (this more detailed analysis may be provided as a follow-on to a SAVEnergy audit);
- Engineering and economic feasibility assessment or screening of opportunities (using FEMP developed software) for energy efficiency, load management, combined heat and power, water conservation, and/or renewable energy measures;
- Sustainable facility workshops or charrettes to encourage integrated sustainable facility design for retrofit or ongoing operations, with an emphasis on energy and water issues;
- Review of specifications and other construction documents and plans;
- Life cycle cost analyses of options for measures using the Building Life Cycle Costing software;
- Assistance with planning for measurement and verification; and
- Review of guidelines for building retro-commissioning and continuous commissioning.

For additional information about FEMP's Retrofit Project Assistance please visit our website at:
http://www.eere.energy.gov/femp/program/newconstruction.cfm

3. Distributed Generation and Combined Heat and Power Project Assistance

Distributed Generation (DG) refers to a variety of relatively small, modular power-generating technologies that are typically located at or near the point of energy use. They can be combined with energy management and storage systems and used to improve the efficiency and reduce emissions. FEMP will select exemplary projects 30 kilowatts or greater in size. DG and CHP offers

some unique benefits to Federal customers that are not available from centralized generation.

Eligible generation technologies should be cleaner and more efficient than alternatives typically powered by natural gas and/or renewable energy. Technologies include fuel cells, microturbines, turbines, reciprocating engines (preferably with efficiency optimized through utilization of waste heat), and renewables (photovoltaic, wind, and biomass). Specific assistance can include the following:

- Screen for DG project opportunities, including combined heat and power screenings;
- Conduct site surveys and feasibility studies;
- Collect and analyze baseline data;
- Provide support for addressing policy and regulatory constraints – siting and permitting, grid interconnection requirements, exit fees, backup charges;
- Review and verify design, including component matching and sizing verification;
- Develop procurement specifications;
- Evaluate technical/price proposal;
- Take performance measurements;
- Assistance to identify, prioritize and assess critical loads and technical approaches to ensure reliable energy supply during a prolonged outage from the grid (energy security); and
- Monitor and assess performance of existing systems.

For additional information about FEMP's Distributed Generation and Combined Heat and Power program please visit our website at:
http://www.eere.energy.gov/femp/technologies/derchp.cfm

4. Renewable Energy Project Assistance

Federal agencies are required to obtain the equivalent of 2.5% of their electricity use from new renewable energy resources by 2005, as detailed in Executive Order 13123, where renewable energy is defined as energy produced from solar, wind, geothermal, or biomass sources. This year FEMP is particularly interested in biomass projects. As of March 31, 2004, the goal is 1,384 GWh and the federal government is using about 1,067 GWh or about 77% of the goal. Due to this ambitious goal, FEMP will focus on large projects whenever possible, FEMP is also interested in renewable projects that can be financed through ESPC or UESC financing mechanisms.

For renewable projects, FEMP services may include:

- Engineering and economic feasibility assessment or screening of opportunities (using FEMP developed software, GIS technology, and more detailed methods as applicable);
- Design review of specifications and other construction documents and plans;
- Assistance in developing procurement specifications;
- Life cycle costing of options for measures using the Building Life Cycle Costing software; and
- Advice and assistance with planning for measurement and verification and performance measurement of installed systems.

For additional information about FEMP's Renewable program please visit our website at:
http://www.eere.energy.gov/femp/technologies/renewable_energy.cfm

5. Operations and Maintenance Projects

Operations and maintenance technical assistance for federal facilities can fit into a number of broad categories, and will include the development of a case study after the recommendations have been implemented and performance has been documented for a suitable time period to verify results. [*Note that O&M technical assistance will be limited to those measures that are expected to impact energy and/or water use and/or cost*.] The categories for O&M-related technical assistance are:

- Building Commissioning/Retro-Commissioning – Results in a plan to ensure that all building mechanical and electrical systems and controls are functioning as desired or required, and can be tailored to specific systems or subsystems.

System design intent is compared with requirements and actual usage patterns and individual components are tested, measured, and analyzed to ensure all components within the system are functioning properly. Overall commissioning project objectives will be identified, specific systems will be targeted for operational/commissioned improvements, and required project personnel (types) will be defined, along with required tasks and responsibilities for personnel. A plan for conducting the work will be delivered.

- Review of O&M Best Practices – A review of a facility to benchmark its O&M practices against the FEMP O&M Best Practices Guide, and recommendations on how to implement an improved O&M program.

- Metering Plans — Assistance in defining metering objectives, analyzing hardware, software, personnel-capability/cost tradeoff options; matching available budgets with potential metering approaches; defining potential uses of metered data; developing agency-specific recommendations; and other related services can be provided as part of metering plan development activities.

- Training
  - Site-specific training – a team of O&M specialists will visit your site to train operators and to perform an O&M survey as part of the training session. The result will be a series of recommendations and an implementation plan, as well as at least one follow-up visit to ensure and verify results.

  - Agency-specific training – training on O&M for agency energy managers and practitioners.

  - Technology-specific training – training on O&M for boilers, metering, chillers, controls, etc.

For additional information about FEMP's Operations and Maintenance program please visit our website at:
http://www.eere.energy.gov/femp/operations_maintenance/

D. OTHER FEMP SERVICES

In addition to this call for projects, FEMP offers other technical services suitable for your facility such as the SAVEnergy Program, Industrial Facility Assessment, and Laboratories for the 21st Century. See Attachment 3 for additional information and to access these services directly and separately from this call for projects.

E. SELECTION CRITERIA

FEMP will use the following set of criteria to evaluate technical assistance applications. Incomplete responses or the absence of a response to these criteria will impact the score assessed for the proposal.

- *Cost Sharing* - Priority will be given to proposals with significant cost sharing by the agency for the technical assistance services to be provided by the national laboratory or contractor. Technical assistance funds for the national laboratories or contractor could range from $25,000 to $50,000 per project from FEMP, depending on the scope of work. In-kind contributions will not be considered as cost sharing.

- *Financial and Technical Merit* – Projects must be life cycle cost effective (per 10 CFR 436) or meet agency mission needs such as energy security. Priority will be given to projects consistent with sustainable design principles per Executive Order 13123 and to produce a diverse portfolio of projects, i.e. agencies, sizes, and types of renewable resources and technologies.

- *Strategic Value and Replicable/Showcase Potential* - Priority will be given to projects in energy markets that can fully exploit energy and water efficiency, O&M, renewable energy, energy security, and DG and CHP benefits. Priority will be given to agencies that offer excellent opportunities for replication of benefits in the federal sector. The agency must describe how the proposed project will be showcased such that it will have broad public visibility and will offer opportunities for other federal agencies to learn from the experience.

- *Agency Support* - The applicant must demonstrate the success of their project is significant to their agency/facility and provide a list of project team members (technical, management, and procurement staff) committed to making the project a success. Please include an agency commitment letter.

- *Project Description* – The applicant must clearly describe the project and expected impacts. This includes descriptions of the facilities, processes, functions or operations, and major impacted equipment. Special consideration will be given to projects that incorporate whole building design principles. Additionally, a

preliminary scope of work for the technical assistance should be provided. This includes the general tasks that you would like FEMP to complete for your project. A preliminary scope of work is necessary for the evaluation.

- *Project Implementation Plan* – Priority will be given to projects that are clearly conceived as reflected in a well-defined and realistic implementation schedule, and projects with evidence of a secured source of financing for their implementation. High ranking will be given to requests for early design phase involvement for new construction projects. The plan should include projected dates for design, construction, and installation.

F. SCHEDULE FOR TECHNICAL ASSISTANCE CALL FOR PROJECTS

- July 16, 2004: Applications due
- November 12, 2004: Applicants notified

G. APPLICATION PROCESS

Complete the Application on line at http://fempcentral.com/tacalls/logon.ta by close of business **July 16, 2004**.

An automatic e-mail confirmation will be sent to applicants from FEMP Central after **FINAL** submission.

For FEMP Central Support, please contact Rosie Field of McNeil Technologies at 703-921-1657; rfield@mcneiltech.com.

Besides the on-line Application, alternative methods of applying require using Attachment 1:

- E-mail Application and attachments.
- Mail or express-deliver Application and attachments.
- Fax Application (analyses and attachments must be sent electronically).

Please submit your application by ONLY ONE method.

Contact for Application Submissions:
Roxane Drayton
McNeil Technologies, Inc.
6564 Loisdale Court, Suite 800
Springfield, VA 22150
(703) 921-1628 Phone
(703) 921-1610 Fax
FEMPCall@mcneiltech.com

Applicants will receive telephone or email confirmation of receipt of Applications sent by these alternative methods. If you do not receive confirmation within 48 hours of the likely receipt of your application, please call R. Drayton at 703-921-1628.

H. ATTACHMENTS

Attachment 1
Application: FY 2005 FEMP TA Call for Projects

Attachment 2
Frequently Asked Questions

Attachment 3
List of Other FEMP Technical Services

Attachment 4
Federal Agency Technical Assistance Reporting

Attachment 5
Application Examples

FEMP Website
http://www.eere.energy.gov/femp/

Attachment 1

FY 2005 FEMP Technical Assistance Application

(A separate application must be submitted for each project assistance request.
Apply on line at http://fempcentral.com/tacalls/logon.ta
for Internet Explorer users only)

Federal Agency Name:
Federal Agency Contact Person Name:
Address:
Phone:
Fax:
E-mail:

Project Name:

Project Location (include facility name, city and state):
_____

Type of Technical Assistance:

___ Sustainable New Building Design
___ Energy and water efficiency retrofits
___ Distributed Generation/Combined Heat and Power contributing to energy security and reliability
___ Renewable Energy
___ Operations and Maintenance

If selecting more than one type of assistance listed above, please indicate how your agency plans to integrate the various technologies or projects.

Scope of Work 1000 word maximum:

(A preliminary scope of work for the technical assistance should be provided. This includes the general tasks you would like FEMP to complete for your projects. A preliminary scope of work is necessary for the evaluation.)

Detailed Project Description (i.e. Facility and operations description, major impacted equipment) 1000 word maximum:

Attach initial screening documentation if available.

(The applicant must clearly describe the proposed project and expected impacts. This includes descriptions of the facilities, processes, functions or operations, and major impacted equipment. Include the size of capital projects (size of buildings (s.f.) and/or value of construction ($). Include potential for energy savings if known. Priority will be given to projects that incorporate whole building design principles.)

Size of capital project (list size of buildings (s.f.) and /or value of construction ($)):

Describe the amount of agency cost-sharing for this project:

(Include the amount of cost sharing for the technical assistance that you can provide and any relevant conditions, i.e. established mechanisms or partners for the proposed cost sharing of requested assistance. Priority will be given to projects with significant cost sharing by the agency for the technical assistance service provided by the national laboratory or contractor. Technical assistance funds for the national laboratories or contractor could range from $25,000 to $50,000 per project assistance depending on the scope of work. In-kind contributions will not be considered as cost sharing.)

How will your agency fund or finance the implementation of this project?
(The applicant should explain ideas on how the project will be funded if the result of the technical assistance indicates it is a viable project opportunity for the agency.)

What is the unit cost and type of energy being displaced by this project?

Electricity: _____	Natural gas: ____	Propane: ____
Diesel: ___	Gasoline: ___	Other: ____

What is your annual energy cost for the building(s) or facility where the project is proposed?

What is your schedule for project implementation?
(Priority will be given to projects that are clearly conceived as reflected in a well-defined and realistic implementation schedule, and projects with evidence of a secured source of financing for their implementation. For new building design projects, priority will be given to requests for early design phase involvement. The plan should include projected dates for design, construction, and installation.)

Describe your agency's level of commitment to supporting this particular project (Is there a team of technical, management, and procurement staff committed to making the project a success?):

(The applicant must demonstrate the success of their project is significant to their agency/facility and provide names/titles of the project team members (technical, management, and procurement staff) committed to making the project a success. Please include an agency commitment letter.)

Are there plans to replicate this project within your facility or agency? If yes, describe:

(Priority will be given to agencies that offer excellent opportunities for replication of benefits in the federal sector.)

Is this an agency "showcase" project (i.e. does this facility have high visitation rates? If yes, describe:

(Does this facility have high visitation rates and/or plan to install educational or interpretive displays in conjunction with this project? The agency must describe how the proposed project will be showcased such that it will have broad public visibility and will offer opportunities for other federal agencies to learn from the experience.)

Is this project consistent with the FEMP's sustainability goals set by legislation (Executive Order 13123, Presidential Directive on "Energy Conservation at Federal Facilities, and the National Energy Policy)? If yes, describe:

What benefits will this assistance provide to your agency?
(Describe energy security and reliability benefits, environmental benefits, and educational value demonstration benefits.)

If you have completed an initial screening or assessment, please attach the results to your application.

If you have completed a life cycle cost analysis for this project or you have documented the cost of the measures and proposed savings, please attach it to your application.

Thank you for your application!

If you have any questions, please contact the following DOE Regional Offices to answer your questions pertaining to technologies, funding, eligibility, etc.

Central or Denver Region
(CO, KS, LA, MT, NE, NM,
ND, OK, SD, TX, UT, WY)
Randy Jones
Phone: 303-275-4814
E-mail: randy.jones@ee.doe.gov

Northeast or Boston Region
(CT, ME, MA, NH,
NY, RI, VT)
Paul King
Phone: 617-565-9712
E-mail: paul.king@ee.doe.gov

Mid-Atlantic or Philadelphia Region
(DE, DC, MD, NJ,
PA, VA, WV)
Thomas Hattery
Phone: 215-370-1362
E-mail: thomas.hattery@ee.doe.gov

Southeast or Atlanta Region
(AL, AR, FL, GA, KY,
MS, NC, SC, TN, PR, VI)
John Adams
Phone: 404-562-0563
E-mail: johnc.adams@ee.doe.gov

Western or Seattle Region
(AK, AZ, CA, HI, ID, NV,
OR, WA, AS, GU, PW, MP)
Arun Jhaveri
Phone: 206-553-2152
E-mail: arun.jhaveri@ee.doe.gov

Midwest or Chicago Region
(IA, IL, IN, MI,
MN, MO, OH, WI)
Melinda Latimer
Phone: 312-886-8582
E-mail: melinda.latimer@ee.doe.gov

Attachment 2

Call for FEMP Technical Assistance Services
Frequently Asked Questions

What is FEMP Technical Assistance?
FEMP's Technical Assistance is a program to expand energy and water efficiency and renewable energy use in Federal facilities and to provide guidance for cost-effective strategies for both new design and retrofit activities. This program includes technical assistance for comprehensive "greening" activities, renewables, energy and water efficiency, distributed energy resources, and O&M assessments.

What specific services does FEMP Technical Assistance provide to Federal energy managers?
FEMP's technical assistance team works with Federal agency staff to develop individual solutions for their particular needs. Examples of technical assistance include the following:

- Setting energy and water design objectives for a new or retrofit project,
- Identifying technical resources for energy and water efficiency and renewable projects,
- Providing technical assistance in areas where services are not readily available,
- Conducting feasibility studies,
- Preparing life-cycle cost analysis,
- Assisting with procurement specifications
- Evaluating design strategies and proposing alternatives, and
- Evaluating energy and other performance criteria after the project is installed.

What services does FEMP Technical Assistance <u>not</u> offer to Federal energy managers?
Except in special cases, the technical assistance team does not provide routine services that are offered in the private sector. Basic energy services should be part of any design or retrofit project, and the technical assistance team can assist Agencies in developing criteria for the selection and procurement of those services and assisting in agency review of those services.

What FEMP Technical assistance services are free and what are cost shared?
Because of its limited budget, FEMP Technical assistance cannot cover all the requests for services. Agencies are encouraged to cost-share with DOE for their technical assistance needs.

How much technical assistance can I request?
A technical assistance request can range from a simple question to detailed technical assistance, i.e. feasibility studies or design reviews. Quick projects can be a day or two of assistance; while more involved projects can last several months. Technical assistance funding typically ranges from $25,000 to $50,000 per project depending on the scope of work.

What criteria are used in determining which requests are supported?
All technical assistance requests are evaluated on an individual basis. Criteria for acceptance include cost sharing by the agency, whether there is a high probability of success, the project can be replicated elsewhere, and other factors described in the Call Letter.

What other services does FEMP offer?
FEMP offers other technical services that may be suitable for your sites. See Attachment 3. FEMP also offers extensive project financing and education programs described at www.eere.energy.gov/femp.

What is the total amount of FEMP Technical Assistance that will be offered through the Call Letter?
The total value for FY 2005 technical assistance is up to $500,000 to be distributed among selected projects. Additional funding may become available.

What is the schedule for submitting requests for Technical Assistance?
The schedule for requests is as follows:

- **July 16, 2004**: Applications due
- **November 12, 2004**: Successful and non successful applicants notified

How do I request FEMP Technical assistance?
Complete the application on line at http://fempcentral.com/tacalls/logon.ta.
For application examples, see Attachment 5.

Who can I contact if I have questions?
Please contact the following DOE Regional Offices to answer your questions pertaining to technologies, funding, eligibility, etc.

Central or Denver Region
(CO, KS, LA, MT, NE, NM,
ND, OK, SD, TX, UT, WY)
Randy Jones
Phone: 303-275-4814
E-mail: randy.jones@ee.doe.gov

Northeast or Boston Region
(CT, ME, MA, NH,
NY, RI, VT)
Paul King
Phone: 617-565-9712
E-mail: paul.king@ee.doe.gov

Mid-Atlantic or Philadelphia Region
(DE, DC, MD, NJ,
PA, VA, WV)
Thomas Hattery
Phone: 215-370-1362
E-mail: thomas.hattery@ee.doe.gov

Southeast or Atlanta Region
(AL, AR, FL, GA, KY,
MS, NC, SC, TN, PR, VI)
John Adams
Phone: 404-562-0563
E-mail: johnc.adams@ee.doe.gov

Western or Seattle Region
(AK, AZ, CA, HI, ID, NV,
OR, WA, AS, GU, PW, MP)
Arun Jhaveri
Phone: 206-553-2152
E-mail: arun.jhaveri@ee.doe.gov

Midwest or Chicago Region
(IA, IL, IN, MI,
MN, MO, OH, WI)
Melinda Latimer
Phone: 312-886-8582
E-mail: Melinda.latimer@ee.doe.gov

Attachment 3

FEMP TECHNICAL SERVICES

Training

Facility managers, energy managers, contractors, and others need to understand the latest information about energy and water management in order to help the Federal government be save energy and money and meet energy efficiency, renewable energy, and water conservation goals. With targeted and up-to-date courses, FEMP helps Federal energy managers become more proficient in energy management and learn about alternative forms of financing energy-saving projects. In addition to FEMP's energy and water management courses, FEMP sponsors a number of national energy and water management conferences hosted by other entities; and, FEMP's Training Locator lists a wide variety of training opportunities offered by universities, professional associations, and private organizations. Additional information on our training program is available at:
http://www.eere.energy.gov/femp/services/training.cfm

SAVEnergy Audits

FEMP's SAVEnergy Audit Program provides a good start to Federal facilities embarking on an energy management program. The SAVEnergy survey includes an investigation of the operation of buildings and their systems and energy-consuming equipment. The survey identifies cost effective energy and water efficiency measures, provides screening for renewable energy opportunities, and provides operating and maintenance recommendations. Optional services include computer simulation of building energy use and a more detailed water survey. The SAVEnergy Action Plan Report details findings of the survey and provides options to implement measures identified, including direct appropriations and alternative financing (energy savings performance contract and utility energy services contract).

FEMP provides direct funding for SAVEnergy, and encourages agency cost sharing for larger, more costly SAVEnergy surveys. SAVEnergy requests may be submitted at any time during the year, although requests submitted early in the fiscal year are more likely to be funded. Additional information on the SAVEnergy Program, and the SAVEnergy request form, are available at:
http://www.eere.energy.gov/femp/services/assessments_savenergy.cfm.

Federal Industrial Facilities Assessments

Assistance for industrial facilities includes plant-wide energy and waste assessments and targeted energy assessments of steam, compressed air and pumping systems. Assessments are conducted on a walk-through basis, typically lasting 2-3 days, depending on the size of the facility. Diagnostic testing, metering, measurement and other data collection activities are included as part of the development of recommendations. Industrial assessments will be performed by teams from the Industrial Assessment Center (IAC) and Best Practices Programs, which historically serve private sector customers under DOE's Office of Industrial Technologies. The average value of assistance on a per project basis is $10,000 - $20,000.

Participants in plant-wide assessments will receive a detailed report that includes a utility (energy, water and waste) history and rate structure analysis, maps of energy, waste and production flows, and recommendations (including engineering calculations and payback estimates) for saving energy and reducing waste. Reports for targeted assessments include descriptions of system configuration and operation, and energy-related recommendations (including engineering calculations and payback estimates). Follow-up discussions regarding implementation plans are lead by FEMP.

FEMP provides direct funding to IAC/Best Practice teams for industrial assessments, and encourages agency cost sharing for larger or multiple assessments. Requests for industrial assessments may be submitted at any time throughout the year, although requests submitted early in the fiscal year are more likely to be funded by FEMP. Additional information on FEMP's Industrial Facilities Program (IFP), IAC/Best Practices assessment teams, and FEMP IFP contacts can be found at: http://www.eere.energy.gov/femp/services/assessments_industrial.cfm.

Laboratories for the 21st Century

Laboratories for the 21st Century (Labs21) is sponsored by the U.S. Environmental Protection Agency and the U.S. Department of Energy. Labs21 is a voluntary program dedicated to improving the environmental performance of U.S. laboratories. Labs21 is designed to improve laboratory energy and water efficiency, encourage the use of renewable energy sources, and promote environmental stewardship.

The Labs21 Program consists of three components:

- Partnership Program
- Training
- Tool Kit

The primary guiding principle of the Labs21 program is that improving the energy efficiency and environmental performance of a laboratory requires examining the entire facility from a "whole building" perspective. Adopting this perspective allows laboratory owners to improve the efficiency of the entire facility, rather than focusing on specific laboratory components. As Labs21 participants understand, improving the efficiency of individual components without examining their relation to the entire system can eliminate opportunities to make other more significant efficiency improvements.

Meet the dynamic group of laboratory experts at (http://www.epa.gov/labs21century/about/team.htm) who stand ready to provide guidance and insight for your organization. Explore our website at http://www.labs21century.gov/ to find out more about Labs21.

Technology Demonstrations

Through technology demonstrations and technical information materials, FEMP helps introduce new energy-efficient and renewable energy technologies into the Federal sector and beyond. These technologies can help agencies not only save energy and money, but also reduce pollution.

FEMP supports a limited number of technology demonstrations to provide independent performance data to Federal decision-makers and support timely Federal adoption of energy saving and environmentally beneficial technologies. A demonstration brings together a Federal host site, a technology manufacturer, a trade association, a local utility, and a national laboratory.

In these jointly funded, collaborative ventures, the Federal site provides on-site support for the technology evaluation, with the goal of reducing energy and operations and maintenance costs. The manufacturer donates equipment for evaluation, with the goal of establishing a Federal track record and improving technologies based on performance analysis. The local utility validates technology contributions and helps its Federal customer offset increasing capacity requirements. Trade associations disseminate results in order to promote new technologies, emphasize technology transfer, and communicate technology benefits to a wide audience. Finally, FEMP and its national laboratory experts provide technical staff to perform the analyses and prepare technical reports on the demonstrations. Additional information on our technology demonstration program is available at: http://www.eere.energy.gov/femp/technologies/tech_demos.cfm.

Attachment 4

FEDERAL AGENCY
TECHNICAL ASSISTANCE REPORTING

Technical Assistance (TA) Follow-up Questions & Table
to be Completed by Federal Agencies at the Completion of a Project

TECHNICAL ASSISTANCE FOLLOW-UP QUESTIONS

Please complete the following questions as part of your report to better assist FEMP in evaluating technical assistance (TA) programs.

1. **Project Name:** _____
   Project Location (include City and State): _____
   Type of Assistance:
   _____ New Construction
   _____ Energy and Water Efficiency Retrofits
   _____ Renewable Energy
   _____ Distributed Energy Resources/Combined, Heat, and Power

2. **Federal Agency Name:** _____
   Agency Location (include City and State):_____
   Agency Contact Name & Title: _____
   Agency Contact Phone & Fax: _____
   Agency Contact Email: _____

3. **Energy Conservation Measure (ECM) Status**
   a. Did FEMP assistance lead to ECM improvements? Yes or No _____
   b. If yes, list ECM information in the table on following page.
   c. If no, describe the benefits to the agency _____
   _____
   _____

4. **Were the ECMs implemented?**
   a. **If yes, what is the expected date for implementation?**
   b. **If no, what is your project implementation schedule (if applicable, include design, construction, and installation activities)?**

5. **Is further study recommended?**

6. **Could your project be replicated? If yes, describe:**

7. **Future ECM implementation**
   Describe briefly planned future implementation of ECM improvements identified in this project.
   _____
   _____
   _____

8. **Customer Feedback**
   Did FEMP assistance exceed your expectations, meet them, or fall short?
   What could we do to improve our service?
   _____
   _____

Technical Assistance Follow-up Table

Please complete the following table as part of your report.

Federal Agency Name: _____ Agency Contact Name & Title: _____

ENERGY and COST SAVINGS

Measure Description	Fuel Type Saved (See notes)	Annual Energy Savings (Btu^6)	Annual Cost Savings (000)	Estimated Costs for Implementation (000)	Year of Implementation
			$	$	
			$	$	
			$	$	
			$	$	
			$	$	
			$	$	
TOTAL:			$	$	

Notes: Fuel Saved: Elec, NGas, Oil2, Oil4, Oil6, Coal, LPG. MMBtu = 1,000,000 Btu

Attachment 5

EMP Technical Assistance Application Example 1

(A separate application must be submitted for each project.
Apply on line at http://fempcentral.com/tacalls/logon.ta)

Federal Agency Name: XYZ AGENCY
Federal Agency Contact Person Name:
Address: Street Address, City, State, Zip Code, Mail Stop/Code
Phone:
Fax:
E-mail:

Project Name: Reducing Energy and Environmental Impact of Critical Backup Utilities
Project Location (include facility name, city and state): Houston, Texas

Type of Technical Assistance:

___ Sustainable New Building Design
_X_ Energy and water efficiency retrofits
_X_ Distributed Generation/Combined Heat and Power
___ Renewable Energy
___ Operations and Maintenance

If selecting more than one type of assistance listed above, please indicate how your agency plans to integrate the various technologies or projects.

Integration of potential replacement options for diesel generator backup power will require assessment of various possibilities, including cogeneration. A secure energy source for backup power and cooling is crucial to various XYZ AGENCY operations as well as other federal and private facilities. Novel ways of maintaining these necessary functions while reducing their environmental impact and cost can be achieved through careful systems engineering and use of state-of-the-art technologies.

Detailed Project Description (i.e. preliminary scope of work, facility and operations description, major impacted equipment) 1000 word maximum:

Attach initial screening documentation if available.

See below.

Size of capital project (list size of buildings (s.f.) and /or value of construction ($)):

Existing building 48 houses the current backup utility systems in 29,000 sq. ft., valued at over $16 million.

Describe the amount of agency cost-sharing for this project:

The project budget allows approximately $30,000 for cost-sharing the technical assistance.

How will your agency fund or finance this project?

If the feasibility assessment conducted here is favorable and gains management approval, it will be incorporated into program operating plan funding cycles.

What is the unit cost and type of energy being displaced by this project? #2 Diesel

Electricity: _____ Natural gas: ____ Propane: ____

Diesel: _$0.84/gal.__ Gasoline: ___ Other: ____

What is your annual energy cost for the building(s) or facility where the project is proposed?

About $100,000/year in diesel + greater than $100,000/year for grid electricity + gas

What is your schedule for project implementation?

If the economic results of this feasibility assessment are favorable, the retrofit upgrade would be began 3 months from the completion of the FEMP technical assistance and completed within 1 year.

Describe your agency's level of commitment to supporting this particular project (Is there a team of technical, management, and procurement staff committed to making the project a success?):

The Environmental Office and Energy Manager at the XYZ Agency are fully committed to this study and additional resources will be committed if selected for FEMP technical assistance. Pending the results of this feasibility assessment, the Center Operations Directorate at our center will lead an experienced team of very qualified and committed individuals from all the necessary disciplines. XYZ Agency's Mission Control Center Facility Control Board will carefully review the various technologies to ensure they will meet stringent requirements for performance, reliability, and compatibility with existing standby utility systems.

Agency Commitment letter is attached.

Are there plans to replicate this project within your facility or agency? If yes, describe:

Building 48 provides the largest backup power and cooling capability at the facility; however, 19 other diesel generator backup power systems and some backup cooling systems are also in use at the facility. Therefore, promising results and approaches from this study can be applied in these other situations. Results of the study will be publicized to other XYZ Agencies and some other facilities may have similar needs for secure, uninterruptible, backup power.

Is this an agency "showcase" project (i.e. does this facility have high visitation rates? If yes, describe:

While not currently defined as a "showcase" project, it could become one. Mission control, supported by these systems, has hundreds of official visitors and thousands of tourists per year.

Is this project consistent with the FEMP's sustainability goals set by legislation (Executive Order 13123, Presidential Directive on "Energy Conservation at Federal Facilities, and the National Energy Policy)? If yes, describe:

Yes. The facility is already well on its way to meeting the targets of E.O. 13123, but additional energy saving measures are sought. This project could provide an excellent opportunity to advance environmentally friendly technologies, including cogeneration, as described in the National Energy Policy.

What benefits will this assistance provide to your agency?

This assistance will allow a comprehensive assessment of state-of-the-art technologies that could provide the best systems engineering approach for critical backup utilities for mission control and other facilities. The technical and economic feasibility results of the study will allow XYZ AGENCY to implement the best long-range plan possible. Immediate benefits may be realized if some of the options studied can be used to replace smaller diesel generators and thus eliminate the need to spend planned funds on improving diesel fuel containment.

If you have completed an initial screening or assessment, please attach the results to your application.

If you have completed a life cycle cost analysis for this project or you have documented the cost of the measures and proposed savings, please attach it to your application.

Reducing Energy and Environmental Impact of Critical Backup Utilities
Detailed Project Description

Project Description:
Mission control at XYZ Agency's facility in Houston, Texas requires a highly reliable source of uninterruptible electric power as well as backup cooling for many critical functions. Currently, this function is provided by redundant 400kW uninterruptible power supplies using lead acid batteries and 5 large diesel engine generators (totaling 9.6 MW capacity), housed in building 48 adjacent to mission control. Four electrically driven chillers, totaling 3200 tons of refrigeration capacity, provide backup cooling.

While these critical backup utilities are necessary for the energy security of America's space program, they do have fairly high environmental and economic costs. Furthermore, several of the diesel generators and electric chillers are over 30 years old and will eventually require replacement. It is therefore prudent to investigate alternatives to the current systems, taking advantage of recent technological advances in the areas of power conditioning and control, energy storage, fuel cells, gas turbines, cogeneration, refrigeration and renewable energy.

It is believed that by applying good systems engineering principles and innovative thinking, the best evolutionary plan for this facility will result. The first step is a technical and economic feasibility study that starts with a clean sheet of paper and considers various options that can meet or exceed the specifications of the current system while offering reductions in environmental and/or economic costs. This is the area where FEMP technical assistance would help XYZ AGENCY a great deal. Fairly detailed assessments will be required to justify changes from the current way of doing business. Results can also be applied to smaller backup generator needs at our facility, potentially saving funds planned to upgrade fuel containment facilities.

One new approach to be investigated is use of the "backup" systems to provide utilities during normal operations, leaving grid power and facility chilled water as the backups. This is of course most attractive if it costs less, but another potential reason for this approach would be greater energy security or reliability. Power generation options such as gas turbines and fuel cells lend themselves nicely to cogeneration possibilities. Mission control requires hot water and/or steam, and thermal energy could also be exported to nearby buildings. The air-conditioning system could use thermal rather than electrically driven chillers. Renewable energy could be incorporated to produce electricity, heat or hydrogen for fuel cells. High-speed centrifugal chillers could reduce volume as well as power required for air conditioning. Part of the assessment of these options will be the regulatory implications of becoming a base load generator.

Financial and Technical Merit:
Technical progress has been made in the last decade in many areas related to power generation, storage and waste heat utilization. Environmental awareness has also increased as well as our resolve to reduce foreign oil imports. Even if it is found that diesel generators still provide the lowest cost alternative, there may be energy security and environmental reasons strong enough to move toward a more sustainable system sooner rather than later.

One factor that may make competing technologies more favorable in this application compared to the inexpensive, high-capacity standby electricity supply provided by diesel generators, is the fact that these engines have a fairly high average run time. To maintain readiness, they are required to run "at load" periodically and to be turned on every time there is lightning within 5 miles.

Cost Sharing and Agency Support:
This technical assistance feasibility study has the potential to show XYZ AGENCY as well as others better ways to provide critical backup utilities. When XYZ AGENCY management approves upgrades to the existing facilities, the Center Operations Directorate at our facility will lead a team of very qualified and committed individuals from all the necessary disciplines. Detailed design and construction funding would be provided from XYZ Agency's annual budget.

For the feasibility study requested by this application, XYZ AGENCY will provide 10% of the total cost for the feasibility study.

Project Implementation Plan:
FEMP technical assistance is requested for technical feasibility, economic analysis and environmental assessment studies related to improving the long-term sustainability of critical backup utilities for mission control and other facilities. XYZ AGENCY will actively participate in the analysis with FEMP.

Cases to be assessed should include:

1 Base case – continuation of current system
2 Fuel cell – including any potential for cogeneration and various fuel sources
3 Gas turbine – including any potential for cogeneration
4 Renewable energy options
5 Alternate chiller options as appropriate
6 Use of grid electricity as backup
7 Promising combinations or variations of the cases above

A preliminary schedule, sequence of events and estimate of required FEMP effort is presented below:

Nov. 2002	Project start – gather information on current systems and requirements. [2 weeks]
Dec. 2002	Finalize cases to be studied – XYZ AGENCY and FEMP agree on case matrix.
Feb. 2003	Complete technical assessments including equipment specification and reliability assessments. [4 weeks]
Mar. 2003	Complete environmental impact analysis. [1 week]
April 2003	Complete economic life cycle analysis. [1 week]
May 2003	Apply results & lessons learned from mission control study to other sites and generalize for other installations. [1 week]
June 2003	Present results to XYZ AGENCY management [1 week]
Aug. 2003	Complete Final report [2 weeks]

Strategic Value and Showcase Potential:
Diesel generators are the most common source of backup power but they have issues with air emissions, fuel spill countermeasures and in some cases noise and fuel availability. In many settings they represent capital assets that are never used. Using newer technologies and new paradigms where distributed power generation is integrated with grid systems, a system with better environmental (and possibly economic) characteristics is possible.

The assistance of FEMP in this study will provide a good opportunity to demonstrate the feasibility of this concept. If successful, XYZ Agency's mission control will provide excellent showcase potential due to its high profile. Generalization of the study will allow its results to be applied to other government and private sector applications that require secure backup power.

Attachment 5

FY 2003 FEMP Technical Assistance Application Example 2

(A separate application must be submitted for each project.
Apply on line at http://fempcentral/tacalls/logon.ta)

Federal Agency Name: XYZ Agency
Federal Agency Contact Person Name:
Address: Street Address, City, State, Zip Code, Mail Stop/Code
Phone:
Fax:
E-mail:

Project Name: Federal Center New Construction Renewable Project

Project Location (include facility name, city and state): Main Street Salt Lake City, UT

Type of Technical Assistance:

_X__ Sustainable New Building Design
___ Energy and water efficiency retrofits
___ Distributed Generation/Combined Heat and Power
_X__ Renewable Energy
___ Operations and Maintenance

If selecting more than one type of assistance listed above, please indicate how your agency plans to integrate the various technologies or projects.

This project involves the construction of a new building in which XYZ Agency would like to incorporate as many renewable energy concepts as are feasible.

Detailed Project Description (i.e. preliminary scope of work, facility and operations description, major impacted equipment) 1000 word maximum:
The facility is being built to accommodate the 10-year expansion plans of the XYZ agencies. This entails constructing a new facility of approximately 300,000 gross square feet with a construction estimate of $75 million. This facility will contain 13 rooms and space for supporting operations. Since this is construction of a new building there is an opportunity to optimize the energy efficiency of all systems, and equipment. The plan is to incorporate state of the art technology into the daily operations of this facility to help optimize the energy usage. Investigating opportunities for renewable sources is a high priority for the project team. The project manager would like technical assistance to help investigate the opportunities for renewable energy, the feasibility of renewable energy, and assistance ensuring that such systems and equipment are designed and selected to optimize the energy use.

Attach initial screening documentation if available.
See Attachment

Size of capital project (list size of buildings (s.f.) and /or value of construction ($)): This is a building of approximately 300,000 square feet and a construction budget of $75 million

Describe the amount of agency cost-sharing for this project:
The project budget allows approximately $30,000 for cost-sharing the technical assistance.

How will your agency fund or finance this project?

Project Design Funds from a Congressional Appropriation

What is the unit cost and type of energy being displaced by this project?

Electricity: Energy Charge $0.02737 / KWh; Power Charge $8.10/ KW

Natural gas: (Avg. Rates) Winter $5.116765/ Dth; Summer $4.0301335/ Dth

Propane: ____ Diesel: ___ Gasoline: ___ Other: ____

What is your annual energy cost for the building(s) or facility where the project is proposed?

Unknown – New construction

What is your schedule for project implementation?
The design phase is presently underway and will last until mid-March 2004. This phase has been broken down into the following major milestones:

- Programming – September 2002 to mid-November 2002
- Schematic Design – mid-November 2002 to mid-March 2003
- Design Development – mid-March 2003 to mid-July 2003
- Construction Documentation – mid-July 2003 to mid-March 2004
- Construction – May 2004 to September 2006

Describe your agency's level of commitment to supporting this particular project (Is there a team of technical, management, and procurement staff committed to making the project a success?):

Many people both within and outside the agency are supporting this project. The team is comprised of the following people:

XYZ AGENCY Deputy Director Property Development

XYZ AGENCY Project Manager

XYZ AGENCY Regional Energy Officer

XYZ AGENCY Contracting Officer

Architects LEED Certified Principal

Agency Commitment Letter is attached.

Are there plans to replicate this project within your facility or agency? If yes, describe: The renewable technologies can and will be replicated in other existing facilities if feasible.

Is this an agency "showcase" project (i.e. does this facility have high visitation rates? If yes, describe: Yes, building is located in the central business district with high volumes of pedestrian traffic. The plan is to have a building that contains state of the art facilities.

Is this project consistent with the FEMP's sustainability goals set by legislation (Executive Order 13123, Presidential Directive on "Energy Conservation at Federal Facilities, and the National Energy Policy)? If yes, describe: Yes, through optimizing energy usage, and possibly incorporating renewable sources.

What benefits will this assistance provide to your agency?
This assistance will provide several benefits for the agency. Optimizing energy use will not only save energy, but will reduce the cost of operating the building. If renewable energy is feasible, possible to incorporate into other projects and save on

energy costs in other buildings. Proper design to optimize energy usage should increase the quality of the indoor environment. If the environment is better, employee morale may be better.

If you have completed an initial screening or assessment, please attach the results to your application.
Not completed

If you have completed a life cycle cost analysis for this project or you have documented the cost of the measures and proposed savings, please attach it to your application.
Not completed